

**LEC.6 BANANA – SOIL, CLIMATE, PLANTING, HIGH DENSITY PLANTING,
NUTRIENT AND WATER MANAGEMENT, INTER CULTURAL
SPECIAL OPERATIONS**

Banana : *Musa sp* Scitaminae Sub family: Musaceae

Banana is one of the oldest fruit known to mankind and also important food for man.

Origin: South East Asia

‘Apple of paradise’

Rich source of energy (137 K. Ca/100g)

It is a good laxative.

Important status: Tamil Nadu, Kerala, Maharashtra, Andrapradesh and Bihar.

Edible bananas are mostly hybrids of the two species.

M. acuminata, *M. balbisiana*. They set fruits by parthenocarpy.

Climate: Humid tropic plant. Temperature range of 10°C to 40°C with an average of 23°C.

Altitude: Upto 1500 mts from MSL.

Wind velocity more than 80 m/hr will damage the crop heavily.

Rainfall : 100 mm/ month is good.

Soil: Deep well – drained soil with abundant organic matter.

Depth – one mete

Soil pH: 5.5 – 8.0 found to be optimum.

Season of planting

Wet land – Feb-April: Poovan, Rasthali, Monthan

April – May : Nendran, Robusta

Garden lands : January – February and November – December

Padugai lands : January – February and August – September

Hill banana : April – May (lower palani hills)

June – Aug (Sirumalai)

Propagation : Sucker

- i. Sword sucker – suckers with a well – developed base and pointed tip having narrow sword shaped leaf bladers in the early stage.
- ii. Water sucker or broad leaved sucker – small, undersized suckers of superficial origin bearing broad leaves.

Sword suckers – more vigorous, grows faster and comes to bearing early.

Average weight of the sucker – 1.5 to 2 kg.

Micropropagation through tissue culture – Rapid multiplication of banana suckers.

Pretreatment of sucker : The roots and decayed portion of the corn are trimmed.

Pseudostem is cut leaving 20 cm from the corn.

To avoid wilt disease infected portion of the corn may be pared, dipped for 5 min in carbendazion 0.1% (1 gm in 1 lit of water) for wilt susceptible varieties – Monthan, Neyvannan, Virupahshi etc.

Pralinage – with 40 g of carbofuran 3 G granules per sucker.

(The corn is dipped in slurry solution of 4 parts of clay plus 5 parts water and sprinkled with carbofuran to control nematodes).

Alternatively, dip the corn in 0.75% monocrotophas shade dried for atleast 24 hours and plant. Sow sunhemp on 45th day incorporate it after about a month. This operation reduce nematode build up.

TC banana – plants with 5-6 leaves planting – *Pseudomonas fluorescense* / plant 25 gm.

Field preparation

The land is ploughed deeply and leveled. The pits of size 45 cm³ is dug. The pits are refilled with top soil, mixed with 10 kg of FYM, 250 g of neem cake and 50 g of lindane 1.3%.

Spacing		Plants / ha
Garden land	1.8 x 1.8 m	3086
	1.5 x 1.5 m	4444
Wet land	2.1 x 2.1 m	2267
Hill	3.6 x 3.6 m	750

High density planting – 3 suckers / pit at a spacing of 1.8 x 3.6 m (4600 plants / ha).

Irrigation

Irrigated immediately after planting, life irrigation – 4th day subsequent irrigation once in a week for garden land 10-15 days in wetland after manuring.

Drip irrigation – 15 lit/ plant/ day from planting to 4th month.

20 lit/plant / day from 5th to shooting and 25 lit/plant/day from shooting till 15 days prior to harvest.

Application of fertilizers

	N	P	K
Garden land	(g/plant/year)		
Other than Nendran	110	35	330
Nendran	150	90	300
Wet land			
Nendran	210	35	450
Rasthali	210	50	390
Pooven and Robusta	160	50	390

Hill banana

375 g of 40:30:40 NPK mixture and 130 g MOP/clump per application during October, January and April. Azospirillum and Phosphobacteria – 20 g each at planting and 5th month after planting preceding chemical fertilizer application.

Apply N as neem coated urea.

N & K in 3 splits 3rd, 5th and 7th month P at 3rd month of planting.

For tissue culture banana 50% extra fertilizer at 2nd, 4th and 6th and 8th month after planting.

For maximizing productivity – fertigation.

25 litres of water / day + 200:30:300 g N:P₂O₅:K₂O /plant using water soluble fertilizer.

For economizing the cost of fertilizers fertigate using normal fertilizers (urea and MOP) with 30% of the recommended dose along with recommended dose of P as basal at 2nd month of planting.

Fertigation schedule

Weeks after planting	N (%)	P ₂ O ₅ (%)	K ₂ O (%)
9-18 (10 weeks)	30	100	20
19-30 (12 weeks)	50	-	40
31-42 (12 weeks)	20	-	32
43-45 (3 weeks)	-	-	8
Total	100	100	100

Interculture

- Mammutti digging at bi-monthly interval and earth-up
- De sucker – prune the side suckers at monthly interval
- Dry and dead, leaves are removed and burnt.
- Male flower – removed a week after opening of last hand
- Bunch emergence – propping. The trees are supported with bamboos or casurina poles to avoid damage by wind.

Growth regulator

Grade of bunch -2,4-D at 25 ppm (25 mg/lit) may be sprayed after the last hand has opened. This also helps to remove the seediness in poovan variety. Spray CCC 1000 ppm of 4th and 6th month after planting. Spray plantozyme @ 2ml/lit at 6th and 8th month after planting to get higher yield.

Micronutrient

ZnSO₄ (0.5%) FeSO₄ (0.2%) CuSO₄ (0.2%) ad H₃BO₃ (0.1%) at 3, 5 and 7 MAP to increase yield and quality of banana.

Bunch cover

Use transparent polyethylene sleeves with 2% (during cool season)-4% (during summer season) ventilation to cover the bunches immediately after opening of the last hand.

Intercropping

Leguminous vegetables, beet root, elephant foot yam and sunhemp. Avoid growing cucurbitaceous vegetables.